

In the catalogue of the *Almagest*, Achernar, a star of the first magnitude, the last in Eridanus (Achir el-nahr, in Arabic), is also given, although it was  $9^\circ$  below the horizon. A report of the existence of this star must therefore have reached Ptolemy through the medium of those who had made voyages to the southern parts of the Red Sea, or between Ocelis and the Malabar emporium, Muziris.\* Though improvements in the art of navigation led Diego Cam, together with Martin Behaim, along the western coasts of Africa, as early as 1484, and carried Bartholomew Diaz in 1487, and Gama in 1497 (on his way to the East Indies), far beyond the equator, into the Antarctic Seas, as far as  $35^\circ$  south lat., the first special notice of the large stars and nebulous spots, the first description of the "Magellanic clouds" and the "coal-sacks," and even the fame of "the wonders of the heavens not seen in the Mediterranean," belong to the epoch of Vicente Yañez Pinzon, Amerigo Vespucci, and Andrea Corsali, between 1500 and 1515. The distances of the stars of the southern hemisphere were measured at the close of the sixteenth and the beginning of the seventeenth century.†

Laws of relative density in the distribution of the fixed stars in the vault of heaven first began to be recognized when Sir William Herschel, in the year 1785, conceived the happy idea of counting the number of stars which passed

starred southern hemisphere." (A. W. von Schlegel, in the *Zeitschrift für die Kunde des Morgenlandes*, bd. i., s. 240.) While this Indian myth figuratively depicts the astonishment excited in wandering nations by the aspect of a new heaven (as the celebrated Spanish poet, Garcilaso de la Vega, says of travelers, "they change at once their country and stars," *mudan de pays y de estrellas*), we are powerfully reminded of the impression that must have been excited, even in the rudest nations, when, at a certain part of the earth's surface, they observed large, hitherto unseen stars appear in the horizon, as those in the feet of the Centaur, in the Southern Cross, in Eridanus or in Argo, while those with which they had been long familiar at home wholly disappeared. The fixed stars advance toward us, and again recede, owing to the precession of the equinoxes. We have already mentioned that the Southern Cross was  $7^\circ$  above the horizon, in the countries around the Baltic, 2900 years before our era; at a time, therefore, when the great pyramids had already existed five hundred years. (Compare *Cosmos*, vol. i., p. 149, and vol. ii., p. 282.) "Canopus, on the other hand, can never have been visible at Berlin, as its distance from the south pole of the ecliptic amounts to only  $14^\circ$ . It would have required a distance of  $1^\circ$  more to bring it within the limits of visibility for our horizon."

\* *Cosmos*, vol. ii., p. 571, 572.

† Olbers, in Schumacher's *Jahrb. für 1840*, s. 249, and *Cosmos*, vol. i., p. 51.